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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,681	08/16/2006	Toshiyuki Ogata	SHIGA7,054APC	9916
20995 7590 01/14/2009 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614				
EXAMINER				
CHU, JOHN S Y				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
01/14/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

### Office Action Summary

**Application No.**

10/589,681

**Applicant(s)**

OGATA ET AL.

**Examiner**

JOHN S. CHU

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 6, 8 and 10-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14, 19, 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8, 10-13, 15-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/14/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This Office action is in response to the amendment filed September 23, 2008.

1. The rejection under 35 U.S.C. 112, second paragraph is **withdrawn** in view of the arguments by applicant.
2. The rejection under 35 U.S.C. 102(b) as anticipated by Yoshida et al (2002/0099147) is **withdrawn** in view of the arguments wherein the t-butyl ( $\alpha$ -adamantylloxymethyl) acrylate fails to meet the claimed structure as recited in claim 1.
3. The rejection under 35 U.S.C. 102(b) as anticipated by Park et al (2002/0177068) is **withdrawn** for the reasons as stated by applicant on page 11 of the response on 9/23 /08.
4. The rejection under 35 U.S.C. 102(e) as obvious over OGATA et al is **withdrawn** in view of the certified English translation received which perfects the priority documents date.
5. The rejection under 35 U.S.C. 103(a) over PARK et al in view of HATAKEYAMA et al and PARK et al in view of UETANI et al is **withdrawn** in view of the arguments by applicant that the combination of the references fail to give the claimed invention.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

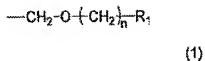
A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 5, 6, 15-18 and 20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by HATAKEYAMA et al (7,402,712).

The claimed invention is now drawn to the following:

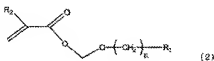
1. (Currently amended) A polymer compound comprising:  
an alkali soluble group (i), wherein  
at least one hydrogen atom of the alkali soluble group (i) is substituted by an acid  
dissociable, dissolution inhibiting group (ii) represented by a general formula (1):



{wherein R<sub>1</sub> represents a cycloaliphatic group which contains no more than 20 carbon atoms and may contain an oxygen atom, a nitrogen atom, a sulfur atom, or a halogen atom, and n represents 0 or an integer of 1 to 5), wherein the cycloaliphatic group contains an adamantane backbone, and wherein

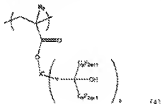
the polymer compound exhibits changed alkali solubility under the action of an acid.

14. (Currently amended) A polymer compound according to claim 9 comprising a structural unit (1) derived from a compound represented by a general formula (2):

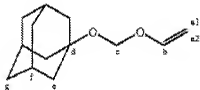


wherein  $R_1$  represents a cycloaliphatic group which contains no more than 20 carbon atoms and may contain an oxygen atom, a nitrogen atom, a sulfur atom, or a halogen atom,  $n$  represents 0 or an integer of 1 to 5, and  $R_2$  represents a hydrogen atom, a fluorine atom, a lower alkyl group containing 1 to 20 carbon atoms, or a fluorinated lower alkyl group containing 1 to 20 carbon atoms), and

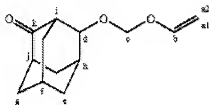
further comprising a structural unit (a6) represented by a general formula (4):



HATAKEYAMA et al anticipates the claimed invention at Examples 1-5 and column 18, lines 37-53 for the formation of resins for photolithography and resists, see the following structure used to make the functional resin which meets the claimed compound:



Example 1



Example 4

Example 1 meets the recited structure of claim 1 and Example 4 meets the polymer compound having a hydrophilic group as claimed.

***Claim Rejections - 35 USC § 103***

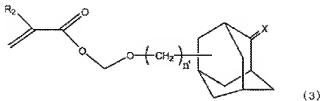
8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over PARK et al (6,753,126) in view of HATAKEYAMA et al (7189,493).

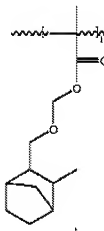
The claimed invention in claims 8 is drawn to the following:

8. (Currently amended) A compound according to claim 7, represented by a general formula (3)



(wherein  $R_2$  represents a hydrogen atom, a fluorine atom, a lower alkyl group containing 1 to 20 carbon atoms, or a fluorinated lower alkyl group containing 1 to 20 carbon atoms,  $X$  represents two hydrogen atoms or an oxygen atom, and  $n$  represents 0 or 1).

PARK et al disclose a polymer made from the following monomer:



which differs by only the cycloaliphatic group being a methyl-norbornyl group. The claimed monomer comprises an adamantyl group attached to the acrylate derived monomer.

HATAKEYAMA et al disclose chemically amplified photoresist compositions wherein the acetal derived monomers include functionally equivalent alkyl groups which may be attached to those monomers which include norbornyl groups as well as adamantyl groups, see [column 15](#),

line 45 - column 18, line 15 specifically formulae (AL-11)-27 and (AL-11)-31 in column 17, lines 32 and 62, respectively.

It would have been *prima facie* obvious to one of ordinary skill in the art of chemically amplified photoresist compositions to substitute known cycloaliphatic groups in monomers known to be used in making polymer for photosensitive composition that are transparent at deep UV wavelengths with the reasonable expectation of same or similar results as disclosed in PARK et al such as excellent sensitivities, resolution and etch resistance upon photolithographic processing.

10. Claims 14, 19, 21 and 22 are allowed.

None of the references of record disclose or anticipated the claimed polymer compound and resist compositions as recited in those claims which having a group of formula (2) and (4) in a copolymer and groups (2) and (47) together in a copolymer.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. FUNATSU et al (2007/0148594), KOYAMA et al (2006/0160247) and CHOI et al (2003/0224289) are cite of interest wherein FUNATSU et al (2007/0148594) and KOYAMA et al (2006/0160247) are not prior art references because of the filing dates, however these references teach similar or the same monomer as claimed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526



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The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John S. Chu/

Primary Examiner, Art Unit 1795

J.Chu

January 9, 2009